

ABSTRACT OF THE DISCLOSURE

A diesel particulate filter (DPF) having an oxidation catalyst is disposed between exhaust pipes of an internal combustion engine. An exhaust gas temperature sensor senses outlet gas temperature of the DPF. An engine control unit (ECU) calculates estimated central temperature of the DPF from an output of the exhaust gas temperature sensor with the use of an inverse transfer function of a change in the outlet gas temperature with respect to a change in temperature of the DPF. Based on the estimated temperature, the ECU performs excessive 10 temperature increase prevention control or regeneration control of the DPF. The transfer function is simply expressed with first-order lag and dead time. A time constant of the first-order lag and the dead time are set in accordance with an exhaust gas flow rate.